INSTALLING JOGL & JOML on WINDOWS for CSc-155

> *Note – these steps are unnecessary if you performed the CSc-165 TAGE installation.*

1. Download and Install Java JDK version 17

This is available on the Oracle website. You need the *JDK*, not just the JRE.

After installing, look for where Oracle put it. Usually, that is `C:\Program Files\Java\jdk-17`

2. Modify your PATH environment variable

Go into the Control Panel ► System ►Advanced System Settings ►Environment Variables.

Under *System Variables*, open the PATH variable.

There is likely to be an entry that reads: `C:\Program Files\Common Files\Oracle\Java\javapath`

Replace that entry with Java's "bin" folder. Usually, that is `C:\Program Files\Java\jdk-17\bin`

3. Create a folder to hold OpenGL-related libraries

preferably: `C:\javagaming`   Create this folder, then make two subfolders: "`jogl`" and "`joml`"

4. Download JOGL version 2.5.0 and install it

Go to "jogamp.com".

On the right, under "Builds / Downloads", to the right of "2.5.0", click on "fat".

Download the file "`jogamp-fat.jar`"

Put that file in the "`jogl`" folder that you created previously in step 3.

5. Download JOML and install it

Go to "github.com/JOML-CI/JOML".

On the far right, click on the icon for the latest release.

Scroll down and download the jar file. (at the time of this writing, it is "`joml-1.10.5.jar`")

Put that file in in the "`joml`" folder that you created previously in step 3.

6. Create a CLASSPATH variable (if you don't already have one)

Go back into the Control Panel ► System ►Advanced System Settings ►Environment Variables.

Under *System Variables*, see if there is a variable named CLASSPATH.

If there isn't, then create one by clicking the "New…" button.

In the "name" field, type in CLASSPATH. In the "value" field, type in a period ("**.**") by itself.

7. Add JOGL and JOML to the CLASSPATH variable

While still in the Environment Variables, open up the CLASSPATH variable by double-clicking it.

You may see a table entry tool, or you may see the previous dialog box from step 6(a).

Add entries for the JOGL and JOML .jar files, after the single "**.**" entry. These should be *full paths*.

For example, if entering them using the list screen, the entries would look like this:

```
  .
  C:\javagaming\jogl\jogamp-fat.jar
  C:\javagaming\joml\joml-1.10.5.jar
```

If you are entering them in the single line dialog box, separate them with semi-colons, like this:

```
  .;C:\javagaming\jogl\jogamp-fat.jar;C:\javagaming\joml\joml-1.10.5.jar
```

Note that changes to environment variables don't take effect until rebooting.
(alternatively, you can open a new command window and work from there)

Test your installation:

1. Download and uncompress the "Tumbling Cube" program from your instructor's website.
2. Open a new command window and migrate to the folder containing the "Tumbling Cube" program
3. Type "compile" – there shouldn't be any compiler errors or warnings.
4. Type "run" – you should see a tumbling multi-colored cube.

You can continue to use these "compile" and "run" batch files in your projects.